



Brown County Library

Mobile Outreach Vehicle Project Specifications

Version 1.2

Released: 8-Feb-2022

Project #: SVS00460

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"YOUR PARTNER FOR THE ROAD AHEAD!"

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1. GENERAL SPECIFICATIONS

1.1 Scope

- 1.1.1. The intent of this specification is to describe the construction of one (1) 32-foot (approximate) long front-engine forward control cab chassis style truck into a Mobile Outreach Vehicle ("vehicle") for use by the Brown County Library ("Library"). The unit shall be built on a 25,900 lb. GVWR (approximate) chassis for adequate support of the van body, conversion, and diversified collection of approximately 3,500 items.
- 1.1.2. The vehicle described herein is intended to provide contemporary mobile library and literacy services to patrons of all ages in an operationally efficient manner. The unit will operate within a suburban/rural environment in Wisconsin and shall be designed and equipped to safely operate in an environment of flat paved roadways with a few hills. The unit will be kept in the library garage when not in service.
- 1.1.3. It is the library's utmost goal to ensure that the bookmobile is well-equipped to operate efficiently and safely in this environment.
- 1.1.4. Weight loading shall be of significant concern during the conversion of this vehicle for efficiency reasons. Substantial effort has been put into the interior design with this factor in mind. Vendor is cautioned to use the lightest materials and construction methods available that will meet all specifications as described herein and make recommendations as appropriate for lightening the static load of the conversion.
- 1.1.5. Renewable and/or recycled materials shall be used as practical during the conversion of this vehicle.
- 1.1.6. The successful vendor shall furnish all materials not specifically denoted as "customer supplied", as well as the labor to complete the conversion of the bookmobile specified herein, as shown on the attached drawings, or as required to complete and/or exceed the general intent of these specifications.
- 1.1.7. These specifications have been developed by Specialty Vehicle Services, LLC. ("SVS") under contract with the library.
- 1.1.8. Any reference to a specific manufacturer or make or model of product not followed by "or equivalent" or "or equal" may not be substituted. The library and/or its authorized agents shall be the sole judge of whether a manufacturer's offerings are deemed equivalent for the purpose of this project, and all proposed "equivalent" or "equal" substitutes shall be expressly accepted prior to installation.



1.2. Contact

1.2.1. All correspondence for this contract shall be directed to:

Brown County Purchasing
305 East Walnut Street
Green Bay, WI 54301
Phone: 920.448.4040

1.3. Manuals and Documentation

1.3.1. The following shall be provided for each unit at the time the equipment is delivered (unless otherwise noted):

- 1.3.1.1. One (1) line set for chassis.
- 1.3.1.2. One (1) certified WI weight ticket listing front axle, rear axle and total weights.
- 1.3.1.3. Two (2) complete key sets (ignition, doors, auxiliary locks, compartments, fuel); maximum keys per set shall be five (5).
- 1.3.1.4. One (1) complete dimensional layout drawing of exterior and interior front, rear, and both sides.
- 1.3.1.5. “As built” electrical schematics accurately detailing AC and DC electrical systems used in the upfitting.
- 1.3.1.6. Drawings and schematics shall also be provided in a digital format.

1.4. New Equipment

1.4.1. Equipment shall be new (unused), and of manufacturer’s current model year production and shall comply with all applicable Federal environmental, motor vehicle, and safety regulations. The conversion shall be equipped with all features and accessories considered standard for the make and model vehicle/equipment provided as well as those specifically detailed within this specification.

1.5. Quality & Standards

1.5.1. Brand names and model numbers are used throughout this document to convey desired quality levels, with the option for equivalents. The library and/or its authorized agents shall be the sole judge of whether a manufacturer’s offerings are deemed equivalent for the purpose of this project, and all proposed “equivalent” or “equal” substitutes shall be expressly accepted prior to installation.

1.5.2. Conversion accessories shall be built and assembled in accordance with the specifications and shall conform to the best standard practices in the industry at the time of construction. All dimensions, weight, and performance values shall be in



accordance with SAE J732c and J742b, as last revised. The vendor will provide all systems integration and testing. All electronics will be installed, fully operational, and tested by the vendor. The vehicle shall be equipped with all features and accessories considered standard for the make and model vehicle/equipment provided.

- 1.5.3. All equipment and construction methods shall meet all applicable regulations of the Occupational Safety and Health Act (OSHA), Federal Motor Vehicle Safety Standards (FMVSS), Department of Transportation (DOT), National Electrical Code (NEC), Federal and State noise and pollution control restrictions, and all other applicable local, state and/or federal regulations in effect at the time of execution.
- 1.5.4. All workmanship, welding, and construction shall be in the best manner of the trade. Workmanship shall be subject to inspection and approval by the library and/or its authorized representatives.
- 1.5.5. Welding fillets shall have good penetration, good fusion, good appearance, and shall show no cracks or undercutting.

1.6. Guarantee

- 1.6.1. The successful vendor shall furnish a warranty stating that the equipment is suitable for the service intended in accordance with the specifications. The vendor shall also furnish the library with a minimum FULL ONE (1) YEAR BUMPER-TO-BUMPER WARRANTY and shall agree to replace and install without charge, within the warranty, any defective part, or parts not suitable for the service intended or found to be defective due to poor workmanship. The proposal will be weighted toward longer warranties and vendor is encouraged to offer, as an option, any available extended warranties with related literature and their costs. Warranty period shall start on the date the unit is put into service by the library.
- 1.6.2. All warranty work shall be completed by the vendor within a reasonable time or repaired by the vendor at the library facility. The library reserves the right to schedule and complete warranty work at a local facility of its choice if requests for resolution are not satisfied in a reasonable time frame. Vendor shall be given proper notice of such intent prior to execution and an invoice shall be forwarded to the vendor for payment.
- 1.6.3. Proposal shall list names, locations, and contact information for the nearest authorized service, parts, and warranty facilities. This list shall include facilities related to chassis, body, generator, conversion, etc.
- 1.6.4. All extended warranty options applicable to this vehicle and its components shall be listed within vendor's proposal with associated costs.



1.7. Inspections

- 1.7.1. Equipment/vehicle(s) may be inspected at vendor's place of business at any time during the conversion process by authorized representatives of the library. The cost of these trips shall be the responsibility of the library.
- 1.7.2. If the equipment/vehicle(s) is inspected after delivery and rejected because of deficiencies, it shall be the vendor's responsibility to make the necessary corrections and re-deliver the vehicle for inspection and acceptance. Payment and/or the commencement of a discount period (if applicable) will not be made until the defects are corrected.
- 1.7.3. Library will make every endeavor to note deficiencies. However, if a variation or an omission between the vehicle and the written specifications is discovered, the contract's written specifications will prevail.
- 1.7.4. Equipment/vehicle(s) will be inspected at vendor's place of business at least once before delivery by an authorized representative of SVS for workmanship, appearance, proper functioning of all equipment and systems, and conformance to all other requirements of this specification. The costs of these trip(s) shall be the responsibility of SVS. If deficiencies are detected, the vehicle may be rejected, and the vendor will be required to make the necessary repairs, adjustments, or replacements.
 - 1.7.4.1. *Dependent on the severity of inspection discrepancies and/or the vehicle is not deemed adequately complete at the time of final (pre-delivery) inspection; vendor shall be responsible for all SVS costs and fees related to a re-inspection. The library shall have the final decision regarding the need for a re-inspection.*

1.8. Training

- 1.8.1. Vendor shall provide in service training and familiarization at the time of delivery. Training shall be conducted by factory-trained personnel and shall be comprehensive enough to allow Library staff to operate and maintain the equipment provided with maximum safety and design efficiencies.
 - 1.8.1.1. Both trainings shall occur at the time of delivery and last a total of approximately 6 hours.



2. VEHICLE SPECIFICATIONS

2.1. Intent

- 2.1.1. It is the intent of the following section to describe the type of vehicle that shall be used for the bookmobile. Accessories and construction techniques not specifically mentioned herein, but necessary to furnish a complete unit ready for immediate use shall also be included.

2.2. Type

- 2.2.1. The cab chassis shall be a 2022 or current model year Freightliner M2 106 class 6 low-profile day cab or equivalent, equipped with a 22' long aluminum dry freight van body with 30" cab-over and "crouching height" pass-through modification. The cab chassis, body and accessories shall be built and assembled in accordance with the specifications and shall conform to the best standard practices in the industry at the time of construction.

2.3. Capacities/Dimensions

- | | | |
|---------|---------------------------|-------------------------------|
| 2.3.1. | Overall exterior length: | 32.0' (approximate) |
| 2.3.2. | Overall exterior width: | 102" (excluding mirrors) |
| 2.3.3. | Overall exterior height: | 12' (approximate) |
| 2.3.4. | Interior length: | 281" (load space) |
| 2.3.5. | Interior height: | 84" |
| 2.3.6. | Floor height from ground: | 39" (approximate) |
| 2.3.7. | Interior width: | 98" |
| 2.3.8. | Wheelbase: | 234" (approximate) |
| 2.3.9. | Ground Clearance: | 12" |
| 2.3.10. | Fuel tank capacity: | 40.00 gallons |
| 2.3.11. | GVWR: | 25,900 lbs. (no CDL required) |

2.4. Cab Chassis

- 2.4.1. Freightliner M2 106 low profile day cab chassis with setback axle and straight truck provisions, LH primary steering location, and low-profile wheels and tires.

- 2.4.1.1. Chassis shall be fully capable of an approved pass-through conversion by the manufacturer.

2.4.2. Engine

- 2.4.2.1. Cummins B6.7 diesel or equivalent, 220-hp minimum with 520 lb-ft torque @ 1,600 RPM



- 2.4.2.2. Engine shall be capable of running on ultra-low sulfur diesel or bio-diesel fuel (B20) at user's discretion with no modifications.
- 2.4.2.3. Current model year EPA emission certification
- 2.4.2.4. Engine after treatment device, automatic over the road regeneration and dash-mounted regeneration switch Engine idle shutdown system.
- 2.4.2.5. Exhaust tail pipe exit located on street side, just forward of the rear axle.
- 2.4.2.6. Engine oil drain plug, magnetic
- 2.4.2.7. Engine shutdown electric, key operated
- 2.4.2.8. Fuel/water separator with thermostatic fuel temperature controlled electric heater and filter restriction/change indicator. Shall include equipment water-in-fuel sensor.
- 2.4.2.9. Electronic road speed governor; set to 75MPH max.
- 2.4.2.10. Engine oil filter, spin-on type
- 2.4.2.11. Direct drive type fan drive, 2-speed with residual torque device for disengaged fan speed
- 2.4.2.12. Aluminum radiator; 2-row, cross flow, over under system with charge air cooler. Includes low coolant visual alarm
- 2.4.2.13. Single element air cleaner
- 2.4.2.14. Starting motor without thermal over crank protection.
- 2.4.2.15. Gates Blue Stripe or equivalent hoses with constant-torque stainless steel hose clamps.
- 2.4.2.16. Switchback horizontal after-treatment device, frame-mounted under cab. Shall include horizontal tailpipe exiting forward of the LH rear tire.
- 2.4.3. Transmission and Equipment
 - 2.4.3.1. Allison 2500 series or equivalent automatic transmission with oil level sensor.
 - 2.4.3.2. 6-speed, non-fire emergency, with overdrive
 - 2.4.3.3. No PTO provisions
 - 2.4.3.4. Synthetic transmission oil
 - 2.4.3.5. Transmission-mounted oil filter and magnet in oil pan
 - 2.4.3.6. T-handle type shift control, dash-mounted
- 2.4.4. Front Axle, Suspension and Equipment
 - 2.4.4.1. 10,000lb capacity minimum single front axle, non-driving
 - 2.4.4.2. Taper leaf, parabolic spring front suspension, 10,000lb. minimum capacity



- 2.4.4.3. Spring pins with rubber bushings, maintenance free
- 2.4.4.4. Two (2) front shock absorbers.
- 2.4.4.5. Tilt and telescoping steering column
- 2.4.4.6. 4-spoke, 18" diameter, black steering wheel
- 2.4.4.7. Power steering gear
- 2.4.5. Rear Axle, Suspension and equipment
 - 2.4.5.1. Single reduction rear axle, 18,000lb. minimum capacity
 - 2.4.5.2. Freightliner AirLiner or equivalent air suspension; 18,000lb. (approximate) capacity, set to "mid" ride-height, with shock absorbers
 - 2.4.5.2.1. Ignition controlled electric dump switch with autofill override valve
 - 2.4.5.2.2. Dump valve with autofill for ignition off and >5MPH, including override control and buzzer on dump valve switch
 - 2.4.5.2.3. Dual leveling valves
 - 2.4.5.3. Gear ratio to meet performance requirements.
 - 2.4.5.4. Rear axle drain plug; magnetic
 - 2.4.5.5. Synthetic rear axle lube
 - 2.4.5.6. Heavy-duty driveshaft
- 2.4.6. Brake System
 - 2.4.6.1. Dual air system, with automatic slack adjustment and four channel ABS
 - 2.4.6.2. Front – Air cam S-cam, including 20 sq. in. long stroke brake chambers
 - 2.4.6.3. Rear – Air cam S-cam, including 24/30 spring long stroke brake chambers and spring actuated parking brake
 - 2.4.6.4. Bendix AD-9 or equivalent air dryer
- 2.4.7. Frame and Equipment
 - 2.4.7.1. High strength low alloy steel frame rails (80,000 PSI yield)
 - 2.4.7.2. Maximum OAL; for LP chassis
 - 2.4.7.3. 33.1" calculated frame height
 - 2.4.7.4. Rear cross member, AF
 - 2.4.7.5. Full width aerodynamic painted front bumper, with license plate mount
 - 2.4.7.6. Rear tow hooks, frame-mounted
 - 2.4.7.7. Rear ICC bumper (concealed behind rear body skirting)
- 2.4.8. Fuel Tank and Equipment



- 2.4.8.1. 40-gallon (minimum), aluminum construction
- 2.4.8.2. Fuel filter/water separator with temperature controlled electric heater and filter restriction/change indicator
- 2.4.8.3. Reinforced nylon fuel hose throughout
- 2.4.8.4. DEF tank, frame mounted, 6-gallon (approximate)
- 2.4.9. Front Tires, Hubs & Wheels
 - 2.4.9.1. Two (2) 19.5" painted steel, hub-piloted 7.50DC rims
 - 2.4.9.2. Two (2) low-profile 19.5" Michelin or equivalent steer tread tires, load capacity matched to GVWR
 - 2.4.9.3. Oil-lubricated wheel bearings and seals.
 - 2.4.9.4. 50W synthetic front lube oil
- 2.4.10. Rear Tires, Hubs & Wheels
 - 2.4.10.1. 19.5" painted steel outer wheels and 7.50DC rim and painted steel inner wheel with 7.50DC rim, hub-piloted.
 - 2.4.10.2. Four (4) low-profile 19.5" Michelin or equivalent mud and snow tread, load capacity matched to GVWR
 - 2.4.10.3. Oil lubricated rear seals and wheel bearings.
- 2.4.11. Electrical System
 - 2.4.11.1. 12-volt, negative grounded
 - 2.4.11.2. 240A minimum, self-excited, pad mounted alternator
 - 2.4.11.3. Two (2) maintenance free 12-volt batteries, 1300 CCA approximate
 - 2.4.11.4. Battery box, with plastic cover, mounted below cab
 - 2.4.11.5. Data link connector for vehicle programming and diagnostics in cab
 - 2.4.11.6. SAE blade type electrical fuses
 - 2.4.11.7. Headlight dimmer switch integral with turn signal switch
 - 2.4.11.8. Single electric horn
 - 2.4.11.9. Air horn, single trumpet, air solenoid operated, mounted below cab
 - 2.4.11.10. Master battery shutoff switch mounted outside battery box
 - 2.4.11.11. Halogen headlights, composite aero design for two-light system, including daytime running lights
 - 2.4.11.12. Electric starter switch, key-operated
 - 2.4.11.13. LED chassis lighting to meet FMVSS regulations
 - 2.4.11.14. Five (5) amber LED lights mounted on cab roof



- 2.4.11.15. Dome light, door activated with timed dimming
- 2.4.11.16. Self-cancelling turn signal switch with headlight dimmer
- 2.4.11.17. 2-speed windshield wiper switch with wash and intermittent feature, integral to turn signal switch
- 2.4.11.18. Single motor windshield wipers, cowl mounted
- 2.4.11.19. One (1) 12V power receptacle
- 2.4.11.20. Back up alarm, electric, 102 dBA
- 2.4.11.21. Body builder wiring, including sealed connectors for tail, turn, backup, accessory power, and ground
- 2.4.11.22. Manual reset SAE type III circuit breakers with trip indicators
- 2.4.11.23. Chassis wiring shall be color coded and continuously numbered
- 2.4.12. Cab Exterior
 - 2.4.12.1. Day cab
 - 2.4.12.2. Argent silver grill
 - 2.4.12.3. Under hood insulation for sound abatement
 - 2.4.12.4. Splash panel insulation for sound abatement
 - 2.4.12.5. Fiberglass hood, tilting front end
 - 2.4.12.6. Painted front bumper with 3-piece construction
 - 2.4.12.7. Dual, motorized, heated, side-mounted, chrome West-Coast style rearview mirrors with integral convex spot mirrors
 - 2.4.12.8. Auxiliary 7.5" sq. (approx.) hood-mounted cross view convex mirror, right hand side, to see ground area directly in front of bumper.
 - 2.4.12.9. Composite exterior sun visor
 - 2.4.12.10. Door glass LH & RH
 - 2.4.12.11. Windshield
 - 2.4.12.12. Eight (8) liter windshield washer reservoir
 - 2.4.12.13. Air-ride cab suspension
- 2.4.13. Cab Interior
 - 2.4.13.1. Deluxe interior trim package.
 - 2.4.13.2. Two (2) molded armrests, on each door
 - 2.4.13.3. "A" pillar molded plastic cover
 - 2.4.13.4. Interior grab handles, pillar mounted, one each side



- 2.4.13.5. Interior trim panels, molded plastic, full height; all interior sheet metal covered
- 2.4.13.6. Overhead console with dual storage pockets
- 2.4.13.7. Interior door trim panels, molded plastic, driver, and passenger doors
- 2.4.13.8. Driver door map pocket
- 2.4.13.9. Cloth headliner
- 2.4.13.10. Rubber floor covering with insulation
- 2.4.13.11. Instrument panel trim, molded plastic with center section
- 2.4.13.12. Two (2) cup holders shall be provided
- 2.4.13.13. Two (2) padded vinyl sun visors, integral to console
- 2.4.13.14. Air conditioning with integral heater and defroster, HFC-134A hydrofluorocarbon refrigerant
- 2.4.13.15. Triangular reflectors without flares
- 2.4.13.16. 5lb. ABC fire extinguisher with mount
- 2.4.13.17. Premium high-back air ride driver seat, with integral headrest, 2-position front cushion adjustment, seat back adjustment, arm rest and single chamber air lumbar support
- 2.4.13.18. High-back single person passenger seat, with integral headrest, seat back adjustment and arm rest
- 2.4.13.19. Both seats to include 3-point, lap, and shoulder type seatbelts
- 2.4.13.20. Power window and door locks
- 2.4.13.21. Driver and passenger air-bag safety system(s) as available
- 2.4.14. Instruments and Controls
 - 2.4.14.1. Key switch ignition keyed alike to cab door locks (with 2 sets of keys)
 - 2.4.14.2. Gauge cluster (English)
 - 2.4.14.3. Electronic speedometer
 - 2.4.14.4. Electronic engine oil pressure
 - 2.4.14.5. Electronic water temperature
 - 2.4.14.6. Electronic fuel
 - 2.4.14.7. Electronic tachometer
 - 2.4.14.8. Voltmeter
 - 2.4.14.9. Odometer display; miles, trip miles, engine hours, trip hours, fault code readout



- 2.4.14.10. Warning system; low fuel, low oil pressure, high engine coolant temperature, low battery voltage
- 2.4.14.11. Allison transmission oil temperature gauge
- 2.4.14.12. Air cleaner restriction indicator, with black bezel mounted in instrument panel.
- 2.4.14.13. DEF fluid level gauge.
- 2.4.14.14. On-board diagnostics display of fault coded in gauge cluster
- 2.4.14.15. AM/FM/WB radio with auxiliary and USB inputs, and Bluetooth capabilities
 - 2.4.14.15.1. Radio shall include two (2) deluxe commercial quality coaxial radio speakers in the cab.

2.4.15. Color

- 2.4.15.1. Cab color: chosen by Library from OEM palette prior to chassis order
 - 2.4.15.1.1. Base coat/clear coat type, 1 tone.
- 2.4.15.2. Interior color: Gray

2.5. Body

- 2.5.1. 22' trade length aluminum dry freight truck body, 102" exterior width with 84" interior height and 30" forward "cabover" section.
- 2.5.2. Body shall be connected to the cab rear wall with a weatherproof boot, to allow crouching height, pass-through capabilities
 - 2.5.2.1. Pass-through boot shall allow cab to "float" on its air-ride suspension
- 2.5.3. $\frac{3}{4}$ " (minimum) exterior plywood or approved equivalent floor
- 2.5.4. No wheel wells; flat floor.
 - 2.5.4.1. Long sill height shall be selected to provide minimum allowable manufacturer specified "jounce" dimension over rear tires.
 - 2.5.4.2. Floor height shall be approximately 39" as measured from ground
- 2.5.5. 3" (maximum) I-beam cross-members; 12" OC
 - 2.5.5.1. Spacing exception may be allowed over the rear wheels, if necessary, to obtain required floor height. Heavy gauge plate steel is one possible solution in these areas.
- 2.5.6. Side wall posts; 16" OC
- 2.5.7. .040" (minimum) pre-painted aluminum side sheeting
- 2.5.8. .080" (minimum) aluminum side deep skirting



- 2.5.9. Skirting shall be full perimeter of body with 12" minimum ground clearance
 - 2.5.9.1. Rear ICC bumper shall be concealed behind the rear skirting.
 - 2.5.9.2. Rear skirting shall include provisions for mounting license plate.
- 2.5.10. One-piece .032" (minimum) aluminum roof
- 2.5.11. Roof bows; 16" OC with reinforcements for A/C units
- 2.5.12. FMVSS 108 lights and reflectors, LED at all locations
 - 2.5.12.1. Rear lighting shall be flush mounted below floor line, in the aluminum skirting.
- 2.5.13. Aluminum or stainless-steel rear structure
- 2.5.14. Rear mud flaps; no logos or advertising
- 2.5.15. Body color: OEM White
- 2.5.16. Two (2) 32" x 80" (approximate) passenger side "sedan type" mid entry (patron) doors placed per drawings. Doors shall be of double-wall commercial quality aluminum construction and internally insulated between inner and outer skins.
 - 2.5.16.1. Doors shall have a dark tinted high-quality opening window with screen in the upper area and a dark tinted high-quality fixed window in the lower area, sized as large as feasible.
 - 2.5.16.2. Step wells shall be a three-step configuration with 10" - 12" deep treads and 7" - 9" high risers. Each step shall incorporate heavy-duty, slip resistant commercial rubber or fiberglass step tread reinforced with aluminum back. The front edge of each tread shall incorporate a 2" safety yellow or white edge. Step wells shall contain 12VDC LED lighting to assist with entry/egress.
 - 2.5.16.3. Door shall utilize continuous stainless steel, aluminum, or similar non-corrosive type vertically mounted, recess-mounted hinges, adequately sized for the anticipated weight and duty cycle of this door.
 - 2.5.16.4. Door shall include an exterior stainless-steel or aluminum drip rail mounted above the door.
- 2.5.17. One (1) of 42" x 80" (approximate) single door mounted off center in the rear wall per preliminary drawing. Door shall be of double-wall commercial quality aluminum construction and internally insulated between inner and outer skins.
 - 2.5.17.1. Door shall be set at floor height (no step well).
 - 2.5.17.2. Door shall have dark tinted high-quality safety glass upper fixed-pane window and dark tinted safety lower fixed-pane window, as large as feasible.
 - 2.5.17.3. Door shall utilize stainless steel, aluminum, or similar non-corrosive type vertically mounted hinges, adequately sized for the anticipated weight and duty cycle of these doors.



- 2.5.17.4. Doors shall include an exterior stainless-steel or aluminum drip rail mounted above the door.

3. CONVERSION SPECIFICATIONS

3.1. Exterior

- 3.1.1. Each 32" patron door shall be configured with the following:
 - 3.1.1.1. One (1) Yale 5100 series or equivalent door closer each to control the movement of the door.
 - 3.1.1.2. One (1) heavy-duty, cast aluminum, positive hold-open device. Device shall be attached to the vehicle in a manner consistent with the intended use and lifetime of the vehicle and hold the door at approximately 90 degrees.
 - 3.1.1.3. One (1) interior pull handle to assist in closing the door.
 - 3.1.1.4. One (1) Yale push-bar "classroom" or equivalent entrance latch shall be installed. Latch shall include provisions to temporarily compress the bar for "free swing" (non-latching) operation at stops.
 - 3.1.1.5. One (1) Yale 112 series or equivalent heavy-duty "deadbolt" latch shall be installed, in addition to the main latch, keyed alike to the entrance latch.
 - 3.1.1.6. Four (4) 1.25" diameter stainless steel handrails each to provide solid entry/egress assistance.
 - 3.1.1.6.1. One (1) 36" approximate length handrail shall be installed vertically on the exterior, just aft of the door.
 - 3.1.1.6.2. Two (2) angle-mounted handrails shall be installed one (1) each side of the step well.
 - 3.1.1.6.2.1. Several bright colored plastic rock climbing hand holds shall be mounted below the handrails on each side to assist children in entry/egress.
 - 3.1.1.6.3. One (1) angle-mounted handrail shall be installed to the interior of the door below the upper window.
 - 3.1.1.7. One (1) premium quality, electric-operated single auxiliary step or approved equal shall be installed beneath each step well.
 - 3.1.1.7.1. Height of deployed steps shall be consistent with the overall staircase run - for smooth patron entry/egress.
 - 3.1.1.7.2. Height of retracted steps shall not impede clearance requirements of section 2.3.9.
 - 3.1.1.7.3. Steps shall be finished with a non-skid surface and a safety yellow, non-skid front strip.



- 3.1.1.7.4. Steps shall operate with the condition of the door and include a local switch to allow the unit to be kept extended, but still retract when the vehicle engine is started.
- 3.1.1.7.5. Steps shall be installed to allow for ease of frequent replacement without special tools or equipment.
- 3.1.2. The 42" rear door shall be configured with the following:
 - 3.1.2.1. Door shall be equipped with one (1) heavy-duty, cast aluminum, positive hold-open device.
 - 3.1.2.2. One (1) standard entrance latch with interior handle shall be installed.
 - 3.1.2.3. One (1) Yale 112 series or equivalent heavy-duty "deadbolt" latch shall be installed, in addition to the main latch, keyed alike to patron door.
- 3.1.3. Three (3) 14" x 22" single dome translucent white acrylic skylights shall be installed with white PVC interior trim.
 - 3.1.3.1. Skylights and installation shall be consistent with the intended lifecycle of this vehicle and be warranted against leaking for a minimum of 5 years.
- 3.1.4. One (1) generator compartment shall be installed street side to mount and enclose the generator. Generator mounting shall be configured to allow easy access to the unit for service, as well as easy removal of the unit for overhauls. This compartment shall be located on the driver's side, fully beneath the floor (no interior protrusion).
 - 3.1.4.1. This compartment MUST maintain a minimum 12" ground clearance but shall not protrude through the cabin floor.
 - 3.1.4.2. Compartment structure shall be designed of adequate strength to hold the weight of the generator and have superior corrosion protection for longevity.
 - 3.1.4.3. Door(s) shall be constructed of aluminum and hinged with 1/4" pin stainless steel continuous hinges.
 - 3.1.4.4. Doors shall have positive "compression" style, "slam latch", or approved equal latches and a door hold-back device.
 - 3.1.4.5. Doors shall be keyed-alike with other exterior compartments.
 - 3.1.4.6. Compartment shall be insulated with Glacier Bay Barrier Ultra dB Flex and Panel or equivalent acoustical insulation.
 - 3.1.4.7. Compartment shall be ventilated to allow ambient heat escape, but adequately sealed to protect the generator from road debris and dust.
- 3.1.5. One (1) auxiliary battery compartment shall be installed curbside to house the auxiliary battery bank. Compartment shall contain a slide tray with positive latch and hold downs for ease of battery maintenance. Tray shall be lined with an isolation material to help prevent battery corrosion.
 - 3.1.5.1. Compartment shall be constructed of aluminum or equivalent materials.



- 3.1.5.2. Door shall be constructed of aluminum and vertically hinged with ¼" pin stainless steel continuous hinges.
- 3.1.5.3. Door shall have positive "compression" style, "slam latch", or equivalent latches
- 3.1.5.4. This compartment shall be sealed to prevent moisture penetration.
- 3.1.6. Two (2) 26"T x 26"W (approximate) high-quality windows shall be installed in the side walls as depicted in the preliminary drawing.
 - 3.1.6.1. Windows shall be a "half-slide" configuration with fiberglass screens.
 - 3.1.6.2. Windows shall be dark tinted.
 - 3.1.6.3. Windows shall be emergency egress type.
 - 3.1.6.4. All glass furnished shall be automotive approved safety type. All glass shall be safety glazed and meet DOT GMVSS 205, SAE recommended practice J673b and J674a, and ANSI "Safety Code for Safety Glazing Materials" Z26.1-1977 as supplemented by Z26.1a-1980.
- 3.1.7. Compartments, doors, and appropriate added components shall be finished to match the OEM body exterior color.
 - 3.1.7.1. Additionally, where the vehicle is cut or modified, or additional fabricated components are added to the exterior, exposed metal shall be properly prepared and painted to match vehicle exterior color.
 - 3.1.7.2. Panels shall be properly cleaned and prepared for paint application in accordance with standard commercial practice and to requirements of the construction materials involved. Surfaces shall be properly cleaned and inspected before cover materials are applied.
 - 3.1.7.3. The prepared surfaces shall be spray primed with synthetic base primer, which contains corrosion resistant pigments and resins. Extra coats shall be applied around moisture catching moldings, etc. All hidden areas such as overlapping metal, underside of moldings, underside or rubber extrusions at windows shall be cleaned and primed and where necessary and caulked with sealing compound during construction.
 - 3.1.7.4. DuPont or equivalent paint shall be applied to all areas of the metal. Each coat shall be properly dried and evenly sanded before the following coat is applied. "Orange peel" surfacing will not be acceptable.
- 3.1.8. Library has a graphics design in place for the vehicle and may request a separate proposal for printing and application from the successful vendor.
- 3.1.9. Vehicle underbody shall be fully undercoated with rubberized spray to provide additional sound resonance dampening and underbody insulation protection.



3.2. Interior

- 3.2.1. The vehicle interior shall be designed to accommodate a collection of approximately 3,500 items, which includes but is not limited to: books of various sizes, DVDs, CDs, oversized materials of odd shapes, magazines, etc.
- 3.2.2. Since this unit is a mobile library and literacy vehicle, and a quiet environment is most important in the successful operation of any library, all interior finishes shall contribute to absorbing ambient sounds. Appropriate panels, ceiling and flooring shall have superior acoustic qualities in addition to durability and aesthetics. Sound control measures shall comply with the Occupational Safety and Health Act (OSHA) sound level (dbA) requirement in effect at time of award of contract, for an eight (8) hour maximum operator exposure time; measured at operator's ear with engine at governed RPM.
- 3.2.3. Completed unit shall utilize environmentally conscious "green" elements wherever practical, including, but not limited to energy efficient technologies, and recycled and/or sustainable construction materials.
- 3.2.4. Weight loading shall be of significant concern during the conversion of this vehicle for efficiency reasons. Substantial effort has been put into the interior design with this factor in mind. Vendor is cautioned to use the lightest materials available that will meet all specifications as described herein and make recommendations as appropriate for lightening the static load of the conversion.
- 3.2.5. Vehicle ceiling and walls, shall be insulated with 1.5" (minimum) nominal thickness rigid dense foam board insulation or approved equivalent.
 - 3.2.5.1. Insulation board shall be carefully trimmed during installation to provide maximum insulation values
 - 3.2.5.2. Vehicle floor structure shall be insulated from beneath with 2" (minimum) nominal thickness spray foam insulation or approved equivalent.
- 3.2.6. Floor covering shall be commercial-grade vinyl Loncoin or equivalent.
 - 3.2.6.1. Covering shall have a 10-year minimum wear warranty
 - 3.2.6.2. Sub-flooring shall be properly prepared prior to installation of the floor covering.
 - 3.2.6.3. Flooring shall be installed in a manner consistent with the manufacturer's recommendations.
 - 3.2.6.4. Any flooring remnants remaining from the installation shall be shipped loose with the completed vehicle.
 - 3.2.6.5. The library will select the exact color and pattern of the flooring from vendor's selections, to coordinate with other interior color choices.
- 3.2.7. Interior walls shall have a ½" plywood substrate adhered to the body structure and finished with materials selected by the library from manufacturer's standard offerings.



- 3.2.7.1. Interior walls shall be covered with a 1/4" layer of cork, and then covered again with tight woven or Velcro friendly fabric. The finish of these panels shall be chosen by the library from manufacturer's standard selections.
- 3.2.7.2. Wall structure shall allow for the widest interior aisle feasible when all components are installed.
- 3.2.8. Ceiling shall be finished with eco-friendly, soft, sound absorbing materials chosen by the library from manufacturer's selections.
- 3.2.9. Fabric-covered cork bulletin boards shall be installed throughout the vehicle where feasible, including, but not limited to, above the door(s) and all overhead cabinet doors. Number and size of bulletin boards furnished shall be determined by the exact configuration of interior. Bulletin boards shall be as large as possible and installed where space is available inside the coach. Fabric shall be chosen by the library from manufacturer's standard selections.
- 3.2.10. One lockable, sliding door shall be fabricated and installed to separate the rear cabin from the cab at the staff's discretion. Door shall utilize heavy-duty hardware and be finished in materials to compliment the interior.
 - 3.2.10.1. Hardware shall include provisions for positively latching the door in the both the open and closed positions.
- 3.2.11. The cab-over area of the body shall be configured to house mechanicals as appropriate, but retain as much space as feasible for storage.
 - 3.2.11.1. Mechanical sections of cab-over shall be accessible via easy to remove access panels
 - 3.2.11.2. Storage section of cab-over shall be accessible via cabinet doors
- 3.2.12. Two (2) floor-to-ceiling wood divider panels shall be installed just aft of the stepwells. Panels shall be constructed of wood veneer plywood with solid wood edging and finished to match the cabinets.
- 3.2.13. Two (2) 3-tier brochure rack with clear Lexan face and removable dividers shall be installed on the floor-to-ceiling panel. Design of the rack shall be approved by the library prior to fabrication and/or installation.
- 3.2.14. Two (2) fixed standing height staff desks shall be furnished and installed per finalized plans. Desks shall be constructed of furniture grade plywood or equivalent. Work surface shall be finished with high-impact laminate or equivalent materials. Surface shall be bonded to a substrate and installed to allow easy removal and replacement as these surfaces experience excessive wear and tear.
 - 3.2.14.1. Desks shall be appropriately configured for installation of technologies by the library, including cable pass-through grommets and defined wire paths from desktop to other locations as designated.
 - 3.2.14.2. Desk shall have a finished height of 36-40".
 - 3.2.14.3. Desk shall have 14" flip-up extension per preliminary drawings.



- 3.2.14.3.1. Extension shall utilize extra heavy-duty hardware for support and include provisions for securing it when in the relaxed (down) position.
- 3.2.14.4. Desk shall include a three-drawer cabinet and a pencil drawer below the work surface. Drawers shall include a positive latching mechanism.
- 3.2.14.5. The finalized design and placement of the desks shall be approved by the library prior to fabrication and installation.
- 3.2.15. One (1) storage closet shall be furnished as depicted in the concept drawing. Closet shall be constructed of furniture-grade light-gauge plywood with the same finish as that of the desk. Closet shall contain three (3) adjustable shelves within.
 - 3.2.15.1. Doors shall be finished with fabric covered cork surfaces.
 - 3.2.15.2. Closet doors shall include a key lock.
 - 3.2.15.3. Closet shall include a 120VAC receptacle for post-delivery client printer installation.
- 3.2.16. An Acore Shelving & Products, Inc. aluminum shelving system shall be supplied and installed. Shelving components shall be powder coated after assembly where possible using coatings containing no lead or lead products. All components shall be constructed from superior grade lightweight materials and be built to withstand the unique stresses imposed by a mobile environment. The shelving layout shall be designed to accommodate approximately 3,500 items, which includes but is not limited to: books of various sizes, DVDs, CDs, videos, books on CD, oversized materials of odd shapes, magazines, etc. All shelving running along the sidewalls of the vehicle shall tilt back 15 degrees. The completed modular shelving system shall include the following components:
 - 3.2.16.1. Fifteen (15) one-piece aluminum slotted shelving uprights, set at 36" centers (typical).
 - 3.2.16.1.1. Uprights shall be secured to sidewalls in a manner consistent with the anticipated stresses that will be imposed and expected lifecycle of this vehicle.
 - 3.2.16.1.2. Uprights shall be properly installed per manufacturer's instruction for smooth operation, including but not limited to ensuring centerlines are accurate (36" +/- 1/16" typical), uprights are plumb, and lateral alignment is true the entire length of each section.
 - 3.2.16.2. Thirty-four (34) Acore 7" deep wall shelves with aluminum center and integral 15° slope.
 - 3.2.16.3. Five (5) Acore single-sided classic "wall hugger" book carts with three (3) 7" shelves each.
 - 3.2.16.3.1. Carts shall include seven (7) additional 9" shelves that can be interchanged at the library's discretion.



- 3.2.16.3.2. Carts shall include one (1) additional worktop shelf that can be interchanged at the library's discretion.
- 3.2.16.4. One (1) Acore double-sided classic "wall hugger" book cart with six (6) 7" shelves.
- 3.2.16.5. One (1) Acore book return cart with locking door.
- 3.2.16.6. Seven (7) Acore "Wall Security Units", to allow locking of wall hugger, worktop, and book return carts to the upright system.
- 3.2.16.7. Two (2) modular bench seat modules shall be fabricated and provided with the completed vehicle.
 - 3.2.16.7.1. Seats shall include a minimum 2" thickness of foam, covered with durable fabric.
 - 3.2.16.7.2. Fabric shall be selected by the library from manufacturer's selections.
 - 3.2.16.7.3. Seat modules shall mount to the shelving uprights using heavy-duty brackets designed for this purpose.
- 3.2.16.8. One (1) modular worksurface shall be fabricated and installed per finalized plans.
 - 3.2.16.8.1. Surface shall be constructed of furniture grade plywood or equivalent and utilize Acore support brackets.
 - 3.2.16.8.2. Work surface shall be finished with high-impact laminate or equivalent materials to match staff workstations.
- 3.2.16.9. Two (2) modular overhead cabinets shall be fabricated and installed per finalized plans.
 - 3.2.16.9.1. Cabinets shall include lockable, top hinged whiteboard surface door, with mechanical stays, per final design.
 - 3.2.16.9.2. Cabinets shall include one (1) interior adjustable shelf and cable grommets in the base panel for future wiring.
 - 3.2.16.9.3. Cabinets shall have a lower, open shelf for placement of printers and other peripherals. This shelf shall contain a cable grommet for easy technology connection.
 - 3.2.16.9.4. Cabinet shall mount to the shelving uprights using heavy-duty brackets designed for this purpose.
- 3.2.16.10. Vehicle shall be configured as depicted in the finalized drawing upon delivery. Any remaining components (extras) of this system shall be shipped loose with each vehicle.
- 3.2.16.11. System shall include two (2) full sets of shelf label color strips, colors to be determined.



- 3.2.16.12. System shall be powder coated for maximum durability; color to be chosen by the library from vendor's standard color selections.
- 3.2.17. Finish, cabinetry and shelving installation shall provide an approximate 75" aisle width.
- 3.2.18. Final configuration of the interior shelving and cabinetry shall be subject to approval of the library prior to installation.

3.3. Electrical System – AC

- 3.3.1. System shall be a 120/240-volt rated, single-phase type system designed to provide and distribute electrical power at a level of performance that meets the requirements of all components and/or accessories utilizing such power throughout the vehicle.
 - 3.3.1.1. System furnished shall be designed and installed to meet all requirements of the National Electrical Code (NEC), with all system components, accessories, plugs, receptacles, switches, and circuit breakers being Underwriter's Laboratories (UL) listed and approved.
 - 3.3.1.2. System furnished shall also meet all applicable state code requirements and regulations pertaining to the design and installation of AC electrical systems.
- 3.3.2. All AC wiring shall be installed using multi-stranded, multi-conductor flexible armored, THHN (in non-metallic conduit), or boat rated cable; 600 volts rated, UL approved or equivalent. All wire shall be color-coded and grounded throughout the system. Aluminum wire is not acceptable due to its history of involvement in electrical system fires. Since the body and chassis of a motor vehicle is constantly flexing in torsion when in use, fixed type conduit is not acceptable due to the long-term potential electrical shorting and the resulting potential of fire hazard.
 - 3.3.2.1. Wiring and harnesses shall be installed in easily accessible locations to aid long-term serviceability and maintain a minimum 2" air-insulated clearance from parallel low-voltage wiring harnesses per NEMA standards.
 - 3.3.2.2. All wiring shall be sized using NEMA ratings to 125% of anticipated load.
- 3.3.3. One (1) Onan 8 HDKAU/41934, 8.0KW or equivalent, 120VAC quiet diesel generator set shall be installed. Unit shall be certified by the Environmental Protection Agency (EPA) to conform to Tier 4 emissions regulations and feature Advanced Control.
 - 3.3.3.1. Unit shall contain integral shut-down protection system to protect against high engine temperature, low oil pressure, loss of coolant, over crank safety, over speed, over/under voltage, over/under frequency, and auxiliary fault.
 - 3.3.3.2. Unit shall draw its fuel from the main vehicle fuel tank through a separate tap that does not allow the generator to draw the fuel level below 1/8 tank.



- 3.3.3.3. Unit shall be capable of running on ultra-low sulfur B20 fuel in addition to ultra-low sulfur diesel with no modification necessary.
- 3.3.3.4. Unit shall utilize the auxiliary battery bank for starting/re-charging.
- 3.3.3.5. Unit exhaust shall exit on the driver's side. Exhaust shall be mounted as high as feasible and include a warning label reading "HOT" in large red font.
- 3.3.3.6. Installation shall include an interior-mounted remote-control panel, located in the cab-over mechanical area.
- 3.3.3.7. Unit shall be mounted in an underbody compartment with an exterior access, ventilated aluminum door. Generator mounting compartment shall maintain a minimum 12" ground clearance.
- 3.3.4. One (1) 25' long, 125/250VAC, 50A rated, 3-pole 4-wire shore cord shall be hardwired into the street side underbody compartment to connect the vehicle to shore power.
 - 3.3.4.1. Cord shall be fitted with a NEMA 14-50 straight-blade connector.
 - 3.3.4.2. Cord shall include one (1) 20-amp adaptor to allow use of one (1) air conditioner and battery charging from a limited power supply.
- 3.3.5. One (1) ATS3W50 or equivalent automatic transfer switch shall be installed to provide automatic switching between generator and shoreline power sources. Unit shall have a 24kW maximum rating and mechanical interlock to prevent any possibility of electrical feedback.
- 3.3.6. One (1) Xantrex Freedom SW 3012, 3000w inverter/charger shall be installed to back-up the onboard "orange" receptacles and recharge the auxiliary battery bank whenever there is shore or generator power available.
 - 3.3.6.1. Unit shall feature pure sine wave output and battery over-voltage and under-voltage protection.
 - 3.3.6.2. Unit shall include a 100A, 3-stage battery charger with manual equalize connected to the auxiliary battery bank.
 - 3.3.6.3. Unit shall be controlled with a Xantrex Freedom SW 808-9002 (simplified) remote switch mounted near the front workstation, for daily, simplified use/control by Library staff.
 - 3.3.6.3.1. The 808-9002 remote switch trigger wire shall be connected to a power source that is only active when the master circuit breaker (ref. 3.4.7) is engaged.
 - 3.3.6.4. System shall also include a Freedom SCP system control panel mounted in an accessible location within the cab-over mechanical area, for programming, monitoring and diagnostics as needed.
 - 3.3.6.5. Unit shall be mounted in the cab-over mechanical area.



- 3.3.6.5.1. Length of battery cables shall be considered when calculating cable size per manufacturer's recommendations.
- 3.3.6.6. System shunt shall be wired to include all auxiliary power loads being drawn from the auxiliary batteries (not just the inverter) for accurate system monitoring.
- 3.3.7. Install one (1) Xantrex Freedom SW Xanbus 809-0915 automatic generator start module shall be mounted in the driver's side cabover mechanical area.
 - 3.3.7.1. System shall automatically activate the generator upon low battery voltage, battery state of charge, over-current or air conditioner operation.
- 3.3.8. One (1) 100A (minimum) rated Square D or equivalent distribution panel(s) shall be installed in the cab-over mechanical area or lower front wall, per finalized design.
 - 3.3.8.1. All AC electrical circuits shall be safety protected from short circuits and current overloading by UL approved resetting type circuit breakers, each properly capacity sized to the circuit they serve. A master circuit breaker that controls all AC electrical system circuits shall also be furnished.
 - 3.3.8.2. Panel(s) shall be readily accessible, yet out of view of the general public.
- 3.3.9. A minimum of two (2) 15A-rated, UL listed, NEMA 5-15, three-hole grounded white duplex receptacles shall be furnished inside the vehicle for general and specific uses. These shall be powered by the generator or shore power only.
- 3.3.10. A minimum of fifteen (15) additional 15A-rated, UL listed, NEMA 5-15, three-hole isolated ground orange duplex receptacles with USB ports shall be furnished inside the vehicle for electronics and sensitive equipment use. These shall be powered by the inverter when the generator or shore power is not being used.
 - 3.3.10.1. One (1) of these orange receptacles shall be weatherproof and installed on the curbside exterior.
- 3.3.11. Two (2) 13,500 BTU low-profile air conditioners shall be installed per drawings.
 - 3.3.11.1. Units shall provide 13,500 BTUs of cooling each.
 - 3.3.11.2. Units shall include self-contained, low-profile ceiling assembly with local controls.
 - 3.3.11.3. Unit shall stand a maximum of 10" above the roof and be included in the overall height measurement (reference 2.3.3).

3.4. Electrical System – DC/Other

- 3.4.1. Shall be a 12-volt, negative ground type system designed to provide and distribute electrical power at a level of performance that meets the requirements of all components and/or accessories utilizing such power throughout the vehicle.



- 3.4.2. Design emphasis of system furnished shall be on both reliability and serviceability. System furnished shall be a modular type design, modular being defined as a system where major power train, chassis, body component assemblies, including lighting, wiring and switch harnesses, and heater harnesses are easily separable for purposes of repair or replacement, using either simple hand tool or automotive type plug-in connectors. Special emphasis shall be made on accessibility to all wiring harnesses in all locations. Wiring shall not be rendered un-accessible behind permanently installed panels or appointments.
- 3.4.3. The power source for all body electrical equipment furnished shall be taken from a single point on the power train specifically designed for this purpose.
- 3.4.4. The main ground wire grounding the body to the chassis shall be minimum 8-gauge size; all ground wires furnished for insulated-return type systems shall be equal in size to the feed wire in the respective circuit. Redundant grounds shall be used if required to attain a satisfactory level of system performance desired. For maximum system reliability, all serrated eyelets and screws or bolts utilized at points of ground shall be either coated or plated with an electrically conductive type material to improve their resistance to corrosion.
- 3.4.5. All electromagnetic type switches, relays and solenoids furnished shall be suppressed to protect the entire electrical system from major damage from the large negative voltage spikes these devices can produce.
- 3.4.6. All auxiliary electrical circuits shall be safety protected from current overloading by automatic resetting type heavy-duty automotive circuit breakers, each properly capacity sized to the circuit they serve.
- 3.4.7. System shall include an easy to use "master shutoff" switch located in a readily accessible area inside the main cabin. This switch shall remove battery power to all installed components (with the exception of memory circuits) for safe and total shutdown of the vehicle when a shore connection is not available.
- 3.4.8. A master high-amp circuit breaker, minimum 150-amp shall also be furnished in an accessible area to allow a complete shutdown of 12VDC electrical systems for long-term storage.
- 3.4.9. All terminals and connectors furnished shall be designed and approved by their manufacturer for heavy-duty automotive vocational application; material shall be a corrosion-resistant type. To eliminate disconnects; all terminals furnished shall incorporate a positive locking, seated type design to assure terminal position. Socket (female side of connectors shall be wired to electrical source side of circuit and plug (male) side of connector shall be wired to electrical load side of the circuit to help prevent a short circuit when disconnected. All connections made on the vehicle underbody shall be adequately protected against moisture and corrosion with dielectric grease, heat shrink tubing, or other similar techniques.
- 3.4.10. All insulated cable furnished shall comply with SAE Standards J1127 and J1128. All wiring furnished in the engine compartment area, where extreme heat and fire are of concern, shall be multi-stranded, low voltage insulated automotive type cross-



linked polyethylene fire-retardant SAE approved SXL type. All wiring furnished in the body portion of the coach shall be multi-stranded, low voltage insulated automotive type; either SAE approved SXL or GXL types are acceptable. All wiring in each circuit shall be of sufficient size, and with 125% capacity rating of anticipated load to transmit the electrical current load of the circuit. Sizing shall consider the length of the circuit and the voltage drop occurring in the circuit. Voltage at the load shall be +/- 5% of rated voltage when measured in a normal operating state.

3.4.11. All wiring shall be routed meeting the following minimum requirements:

- 3.4.11.1. No contact with sharp or puncturing edges.
- 3.4.11.2. No tension or strain between fixed points.
- 3.4.11.3. Adequate and safe clearance of moving parts.
- 3.4.11.4. 5-inch clearance from radiant heat sources.
- 3.4.11.5. Adequately secured to prevent pinching.
- 3.4.11.6. Wiring to be color-coded and numbered, grease-, oil- and moisture-resistant and securely fastened.

3.4.12. All wiring furnished shall be routed in protective harnesses, either woven vinyl or corrugated vinyl or nylon types acceptable. When harnesses go through metal structure, rubber grommets shall be used to further protect the integrity of the harnesses.

3.4.13. Four (4) Trojan L16P-AC or equivalent, group 903, 6V deep-cycle, batteries shall be provided as an auxiliary battery bank for stationary 12VDC component power.

- 3.4.13.1. Each battery shall have 420 Ah capacity (@20hr), for a total bank capacity of 840Ah. Batteries shall be connected in a "series/parallel" manner to provide a 12VDC reference.
- 3.4.13.2. Batteries shall be installed within the underbody battery compartment with a positive hold-down system.
- 3.4.13.3. Batteries shall power installed auxiliary systems only.
- 3.4.13.4. The vehicle engine alternator, inverter/charger, and (optional) solar panels shall charge these batteries.

3.4.14. One (1) Blue Sea ML-ACR or equivalent heavy-duty battery isolation/merge system shall be installed to allow charging of both the main and auxiliary battery banks from the vehicle alternator, isolation during stationary operations, and merging of the battery banks for emergency starting.

- 3.4.14.1. System shall include dash-mounted control switch with indicator lights.
- 3.4.14.2. System shall include one (1) Blue Sea 7635B-BSS or equivalent low voltage disconnect.



- 3.4.14.3. Battery connection cables associated with this system shall be protected on both sides with a 150A minimum, high amp, resettable circuit breaker.
- 3.4.15.A 12VDC, LED main cabin lighting system shall be installed to provide interior lighting meeting library minimum stack ratings.
 - 3.4.15.1. Lighting fixtures shall be alternately configured on two (2) switches to allow a “zig-zag” lighting option at the user’s discretion.
 - 3.4.15.2. Lighting level should be 6 foot-candles (ft-c) minimum measured on the stack face (vertically) at a height of 12”, and 35 ft-c maximum at any height to achieve no more than a 6-to-1 maximum-to-minimum ratio across the entire stack face.
 - 3.4.15.3. Light output temperature shall be a “warm” white between 3000K – 4400K.
 - 3.4.15.4. Lighting fixtures shall be of a rectangular design for a more linear light pattern.
 - 3.4.15.5. Lighting system design shall be approved by the library prior to installation.
- 3.4.16. LED stepwell lighting (12VDC) shall be provided at the side entry.
 - 3.4.16.1. Shall be wired to operate in conjunction with the condition of the door.
- 3.4.17. LED storage cavity lighting shall be installed in the cab-over storage area. Lighting shall activate with the condition of the access doors.
- 3.4.18. One (1) 12VDC “cigarette lighter” style power receptacle shall be provided in the cabover area for powering of a client supplied powered cooler.
- 3.4.19. Four (4) Whelen 600 series or equivalent, LED weatherproof “scene” lights shall be installed: two (2) on the exterior curbside, and two (2) on the exterior rear.
 - 3.4.19.1. Lights shall be controlled by two (2) switches in the driver’s area.
 - 3.4.19.2. Rear mounted lights shall also be engaged by putting the vehicle in reverse.
- 3.4.20. One (1) Espar AIRTRONIC D5 Plus or equivalent diesel fueled air heater shall be installed to heat the main interior cabin.
 - 3.4.20.1. Unit shall produce 16,450 btu/hr
 - 3.4.20.2. Unit shall safely vent combustion air to the exterior of the body
 - 3.4.20.3. Unit shall be fueled from the main vehicle diesel fuel tank.
 - 3.4.20.4. System shall be installed in compliance with ANSI A-119.2 and NFPA regulations and all manufacturer specifications.
- 3.4.21. One (1) Braun, Ricon or equivalent, in-body platform hydraulic wheelchair lift shall be installed inside the rear wall door.
 - 3.4.21.1. Lift shall have a 31”W x 51”L platform.
 - 3.4.21.2. Lift shall have an 800 lb. lifting capacity.



- 3.4.21.3. Installation shall include all vehicle interlocks and safety systems.
- 3.4.21.4. Lift shall be cycled a minimum of 20 times by the vendor after installation to ensure all adjustments are properly made.
- 3.4.22. Two (2) Fantastic Vent 3350 or equivalent, 3-speed, reversible roof vents shall be installed. Vents shall include thermostatic control, automatic opening dome, and automatic rain sensors.
- 3.4.23. One (1) AM/FM/WB/XM/Bluetooth stereo with auxiliary input system and public address capabilities shall be installed in the rear area.
 - 3.4.23.1. System shall include four (4) high-quality interior speakers mounted in the ceiling and two (2) high quality, flush-mounted exterior speakers with separate volume control mounted on the curbside of the vehicle.
 - 3.4.23.2. System shall include one (1) wireless microphone with dedicated holder.
- 3.4.24. One (1) rear view, color LCD system shall be installed. System shall include all components necessary for the intended application and be wired with all features enabled.
 - 3.4.24.1. Shall include one (1) 7-inch (minimum) LCD color monitor mounted on (or in) the dash for easy view of the driver.
 - 3.4.24.2. Shall include one (1) video camera with sun shields and built-in microphone mounted to rear exterior. Shall have a vibration and shock resistant mounting, waterproof, and a minimum viewing angle of 114 degrees horizontal and 90 degrees vertical.
- 3.4.25. Wiring for client installed Cradlepoint IBR900, wireless LTE advanced ruggedized modem.
 - 3.4.25.1. Wiring shall include a protected power circuit from the auxiliary 12VDC system.
 - 3.4.25.2. Wiring shall include two (2) Cradlepoint 170654-000 or equivalent 5-in-1 GPS, modem & Wi-Fi antennas, mounted to the exterior roof of the vehicle.
 - 3.4.25.3. Wiring shall be installed in the cab-over mechanical area.
 - 3.4.25.4. Wiring shall include two (2) CAT6 10/100 Mbps RJ-45 hardwire runs; one (1) each to the staff workstations.
- 3.4.26. Two (2) Elmech Q-scan Uniplex, or equivalent, people counters shall be installed; one (1) in each doorway.
 - 3.4.26.1. Systems shall include magnetically activated, 4-digit 12mm high LED displays.
 - 3.4.26.2. Systems shall count each person crossing the beam, regardless of the direction of approach.
 - 3.4.26.3. Systems shall include non-volatile memories to protect against power failure.



3.4.26.4. Reference: <http://www.q-scan.co.uk/uniplex.htm>

3.4.27. One (1) 12VDC LED “OPEN” sign shall be provided and installed with a mount in the curbside front window.

3.4.27.1. Sign shall have a local on/off switch.

3.4.27.2. Sign mount shall not interfere with normal or emergency egress operations.

3.5. Miscellaneous Components

3.5.1. One (1) SkyScan or equivalent atomic clock shall be furnished, with a minimum 2-inch main character size. Unit shall include readouts for interior and exterior temperature (via wireless remote sensor), day and date, and receive its synchronization signal from NIST.

3.5.2. One (1) battery-operated Carbon Monoxide (CO) detector shall be installed on the interior ceiling.

3.5.3. One (1) battery-operated smoke detector shall be installed on the interior ceiling.

3.5.4. Two (2) 5 lb. ABC fire extinguishers shall be installed in the interior, one front and one rear.

3.5.5. One (1) WI State DOT approved first aid kit shall be supplied and installed within the completed vehicle.

3.5.6. One (1) set of three (3) red emergency reflective triangles with dedicated ABS plastic enclosure shall be provided and installed.

4. **OPTIONAL ITEMS** (please quote these items separately)

4.1. Standing height walk-through

4.1.1. Increase headroom in the cab pass-through modification by cutting away an approximate 24” deep (minimum) by 24” wide (minimum) section of the roof of the truck cab to create headroom into the cabover area of the body.

4.1.1.1. The full-height walk-through must utilize a flexible gasket between the truck cab and body (rear wall and roof) for a weatherproof seal that can accommodate the cab air-ride suspension.

4.1.2. The depth of the body cabover section shall be increased to 44” to allow this modification.

4.1.3. Walk-through modification shall be fully warranted against leaks for a minimum of 10 years and fully structurally approved by the chassis manufacturer.

4.1.4. The cab-over area of the body shall be configured with mechanical items located over the passenger’s seat and general staff storage over the driver’s seat.



- 4.1.4.1. A raised “keeper” edge shall be installed to help keep items from falling into the walkway.

4.2. 360-degree camera system

- 4.2.1. One (1) Seon 360 around vehicle monitoring or equivalent system shall be installed with all triggers/features connected. System shall be mounted in a location out of general view, but still readily accessible for staff. System shall include, but not be limited to the following components. Additional accessories (cables, power/sensor harness, antennas, interconnects, etc.) may be necessary to fulfill the general intent of the system, and vendors are urged to consult with system manufacturer to complete system operability. System shall allow a 360-degree bird's eye view around the vehicle at the dash.

- 4.2.1.1. One (1) 9"-11" dash-mounted monitor.

- 4.2.1.1.1. Monitor shall automatically show exterior rear (back-up) camera when the vehicle is put in reverse.

- 4.2.1.2. One (1) Electronic Control Unit (ECU).

- 4.2.1.3. One (1) 6-channel Digital Video Recorder (DVR) with 1TB of storage.

- 4.2.1.4. Seven (7) cameras, appropriately selected for these locations: street side exterior, front exterior, curbside exterior, rear exterior, cab area, main cabin interior facing rear, main cabin interior facing forward.

- 4.2.1.5. System shall supersede back-up camera system (reference 3.4.24).

4.3. Proximity Sensors

- 4.3.1. One (1) proximity sensor system with 4 front and 4 rear in-bumper sensors shall be installed. System shall detect obstacles using ultrasonic wave (sonar) echolocation technology and include a wired LED digital display with audible alert mounted in the dash area.

4.4. Interior 32" monitor on drop-down mount

- 4.4.1. One (1) 32" high-resolution monitor shall be installed on a drop-down ceiling mount above the wheelchair lift.

- 4.4.1.1. Installation shall include one (1) HDMI cable run from the front workstation.



- 4.4.1.2. Interior installation shall include a MORryde TV1-080H or equivalent drop-down TV ceiling mount.
- 4.4.1.3. Monitor shall be powered by an inverted circuit.

4.5. Exterior 55" monitor with compartment

- 4.5.1. One (1) recessed monitor compartment shall be installed curbside to house the exterior 55" monitor. Compartment shall include a back panel for monitor mounting, and a top-hinged door that acts as a sun and weather shield when open.
 - 4.5.1.1. Compartment shall be constructed of aluminum or equivalent materials, as shallow as feasible to accommodate the screen and have minimal impact on the interior cabin width.
 - 4.5.1.2. Compartment shall have a connection plate below the screen for powering and connecting a video game console or other content source to the screen.
 - 4.5.1.3. Back panel shall be colored black for improved screen visibility.
 - 4.5.1.4. Door shall be constructed of aluminum and horizontally hinged with 1/4" pin stainless steel continuous hinge, and have positive "compression" style, "slam latch", or equivalent latches
 - 4.5.1.5. Door shall have pneumatic lift assist struts with mechanical locks to support the door horizontally when open, and a nylon pull strap attached to assist in reaching the door for closing.
- 4.5.2. One (1) 55" high-resolution LCD monitor shall be installed inside the passenger side exterior monitor compartment
 - 4.5.2.1. Unit shall be shock-mounted, but easily removable for service and/or replacement.
 - 4.5.2.2. Unit shall be capable of playing content via USB device.
 - 4.5.2.3. Installation shall include one (1) HDMI cable from the cab-over area and one (1) HDMI cable from the game connection plate mounted below the screen in the exterior box.
 - 4.5.2.4. One (1) Bose Solo 5 or equivalent sound bar shall be provided and mounted below the screen.

4.6. Underbody storage compartment

- 4.6.1. One (1) storage compartment shall be installed. Compartment shall be of maximum size available and located based on final design.
 - 4.6.1.1. This compartment shall be installed fully beneath the floor (no interior protrusion).
 - 4.6.1.2. This compartment shall be sealed to prevent moisture penetration.



- 4.6.1.3. Compartment shall be constructed of aluminum or equivalent materials.
- 4.6.1.4. Door(s) shall be constructed of aluminum and vertically hinged with ¼" pin stainless steel continuous hinges.
- 4.6.1.5. Door(s) shall have positive "compression" style, "slam latch", or equivalent locking latches

4.7. Multi-tone horn

- 4.7.1. Provide and install one (1) Wolo 336 or equivalent juke box electronic musical horn system.

4.8. Exterior mount bubble machine

- 4.8.1. Provide and install one (1) ADJ Products bubbletron or equivalent bubble machine with removable exterior mount.
 - 4.8.1.1. Installation shall include a quick connect exterior mount on the rear of the vehicle.

4.9. Underbody color changing LED lights

- 4.9.1. Provide and install one (1) RV underbody color/pattern programmable LED light system for enhanced visual impact.
 - 4.9.1.1. Light strips shall provide a bright color changing glow from the wheel wells and underbody skirting
 - 4.9.1.2. Light strips and installation shall be suitable for a harsh underbody environment
 - 4.9.1.3. Lights shall be controlled by a hard-wired control in addition to any wireless control options available for the system.

4.10. AED machine

- 4.10.1. Provide and install one (1) Zoll adult green EMS device with carrying case and supplies.

4.11. Polished aluminum wheels

- 4.11.1. Upgrade all exterior wheels to polished aluminum

4.12. Exterior chrome upgrades

- 4.12.1. Change painted steel front bumper to chrome plated.



4.12.2. Upgrade grill from argent silver to chrome

-----END OF SPECIFICATIONS-----